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ABSTRACT

In view of a demand for information and an expansion in evaluation research practices, possibilities for combining quantitative and qualitative methods in program evaluation should be explored. Quantitative research methods attempt to reduce observed social phenomena to numerical notations. Their weaknesses include the reduction of social phenomena to key variables, application to complex social problems that might not adhere well to mathematical models, and deficiencies in defining meaning as attached to phenomena and attributing variations observed to specific causes. Qualitative methods of inquiry bring the researcher intimately close to the subjects and setting under study. Qualitative research depends on the researcher's definition and articulation of data and often lacks the capacity to compare across sites on common specified variables. The bases for combining methods of investigation appear to lie in several domains: (1) comprehensiveness, (2) outcomes tied to meanings, (3) utility, (4) political needs, (5) interpretation, and (6) exploration. (YLB)

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COMBINING QUANTITATIVE AND QUALITATIVE METHODS OF EVALUATION: IMPLICATIONS FOR VOCATIONAL EDUCATION

- A Symposium -

I. Combining Quantitative and Qualitative Research Methods: A Perspective

II. A Status Study Using Multiple Educational Research Methods

III. Factors Affecting Job Placement in Vocational Education: A Study Using Survey and Case Study Research Methods

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Jennifer McCreadie
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To the reader:

This paper is the first of three papers presented in a symposium entitled Combining Quantitative and Qualitative Methods of Evaluation: Implications for Vocational Education. The symposium was part of the American Vocational Association Conference in New Orleans on December 9, 1980.

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COMBINING QUANTITATIVE AND QUALITATIVE EDUCATIONAL RESEARCH METHODS: A PERSPECTIVE

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Introduction

The practice of evaluation research has increased dramatically in the last decade. For vocational education and CETA programs national mandates to increase services to non-college bound youth in general and to special populations in particular (e.g., minorities, women, handicapped youth, etc.) have led to increased demands for evidence of program effectiveness. Perhaps the chief catalyst for the growth in evaluation research in vocational education and CETA has been the public's and thus the federal government's role in requiring accountability from these mandated programs and services.

It is within the conditions of 1) a demand for information, and 2) an expansion in evaluation research practices that we explore the possibilities for combining quantitative and qualitative methods in program evaluation.

For the sake of convenience (yet with the recognition of differences between research and evaluation), I will not take pains to separate in any detailed manner educational research from educational evaluation in this paper. The traditional descriptions of the differences suggest that evaluation is an activity where judgments of a program's worth are expected and research is an activity where the study of a program may lead to theory - justification or the explication of laws, but

only secondarily to judgments of worth (in fact, research may or may not carry intended judgments of worth).

The focus on methods in this paper allows us to review the similarities in methods actually used in both research or evaluation. Although the logic of applications may be different for research and evaluation, the basic quantitative and qualitative methods of observation and analysis are the same.

The purpose of this symposium is to investigate the traditional bases for quantitative and qualitative research methods, to offer suggestions for combining methods, to describe examples of research using combined methods, and to raise questions about the combinations of methods available for educational research.

In this paper, I will review the "traditional" arguments for using quantitative or qualitative methods as the arguments are and have been set out by educational researchers and practitioners. I will then suggest a basis for combining methods.

Quantitative Methods (or "If you can't count it, it doesn't count")

Quantitative research methods are usually considered in the educational evaluation context as those that attempt to reduce observed social phenomena to numerical notations. Examples of these used in educational evaluation are objective tests, questionnaires, surveys, cost-benefit analyses and census records. The underlying concepts that support the "quantification" of social phenomena are those derived from the natural sciences. These concepts maintain, as interpreted in educational evaluation, that for defined classifications of behavior certain indisputable laws exist. This carries the mathematically-derived assumption that if large numbers of people are observed for

certain characteristics, then these characteristics may be considered common to all people falling within the classification. For example, a principal argument in survey methodology allows that when an individual responds to an item on a survey, he/she is making a subjective reference; but, when large numbers of subjective responses are collected and numerically coded, these become an objective reality that generalizes to all people within a particular classification.

The quantitative tradition applies mathematical models of analysis to numerically noted data. As argued by its proponents, these logical systems of analysis when combined with the conceptual framework described above enables users of quantitative methods to move beyond the assumptions of laws to explanation and prediction.

Á la Campbell and Stanley (1963), the assumptions of explanation and prediction stem from design considerations in the use of quantitative methods. One, a random sample from a population is selected. Randomization allows a researcher to state that it is reasonable to assume that findings are representative of a population. Secondly, it is argued that the ability to explain and/or predict requires that appropriate controls in the design are used. Controls involve the use of control groups and appropriate measurement techniques (usually pre and post test) and eliminate possible external causes of observed changes.

The application of these design considerations permits the researcher to "explain" a cause for change in some measure of outcomes and to "predict" that these outcomes can be expected for similar populations.

The argument (as exemplified by Campbell) continues to state that the key criterion of proof of the validity of quantitative methods lies in their enabling evaluators to control rival causal factors, time order and covariance of variables. (It is noted that more modern methods of

statistical analysis, i.e., multivariable and multiple regression techniques, tend to widen the possiblities for expanded uses of quantitative methods).

A Critique

One weakness of quantitative methods lies in the reduction of social phenomena to key variables. In the empirical tradition, it is assumed that only the most critical or relevant observable (thus, "countable") variables should be undertaken for study; the meanings attached to variables often are missed when quantitative methods are used. In the interpretation of data from quantitative research, the researcher tends to infer meaning from selected observations, rather than obtaining the varieties of meanings held and experienced by the subjects of the research.

Also, quantitative methods are often applied to complex social problems that might not adhere well to mathematical models. This often causes poor researchers to expect that the methods used always give objective information and facts. The relationship of model to substantive problem is one of the chief problems facing users of quantitative methods.

Quantitative methods may produce solid information about the characteristics of an observed phenomena of large groups, but are lacking when called upon to define the meanings attached to phenomena and to attribute the variations observed to specific causes.

Qualitative Methods (or "If you can count it, it isn't it")

Qualitative methods of inquiry bring the researcher intimately close to the subjects and setting under study. The intention of this

"closeness" is to observe the people, interactions, and setting in total, to explore the complex varieties of variables, common and unique, that operate during the observation. "Qualitative researchers, in contrast to their quantitative colleagues, claim forcefully to know relatively little about what a given piece of observed behavior means until they have developed a description of the context in which the behavior takes place and attempted to see that behavior from the position of its originator (Maanen, 1979)."

The tradition of qualitative methods stems from holistic and intuitive bases of knowing. Its philosophical roots lie in phenomenology, "the understanding of human nature from the actor's own frame of reference (Bogdan and Taylor, 1975)". To know and understand in the qualitative tradition demands that the researcher record the individual's perspectives, experiences, and settings.

Qualitative methods of evaluation consist of interviews, participant observations, and reviews of documents, but may include informal conversations, observations of meetings, and reviews of statistical data. These methods tend to introduce diversity of data; varieties of information are collected. The qualitative researcher remains open to whatever data are available using an inductive, discovery-oriented approach. This focus runs contrary to quantitative methods where hypotheses, categories and variables are predetermined.

The notion of boundaries is critical to qualitative methodology. The researcher must specify the boundaries of the unit under study. However, the notions of boundaries are broadly defined to include people, places, programs, concepts and time frames. The selection of random samples from populations is generally not used in defining boundaries.

The qualitative researcher also introduces his/her personal bias about the study. Where the quantitative researcher considers her/himself to be an impartial observer, the qualitative researcher introduces his/her biases when reporting on the study.

As data are collected in qualitative research, patterns of information, issues and data begin to emerge. As these patterns and issues are indentified, "...the investigator (may) begin to focus on verifying and elucidating what appears to be emerging - (using) a more deductive approach to data collection and analysis (Patton, 1980)".

The qualitative researcher often applies the technique of triangulation to move from description to verification. Triangulation involves the uses of multiple time frames, methods, participants, and perspectives to confirm or disconfirm emerging issues. The issues or patterns that overlap from multiple sources tend to be described as significant in that context.

Generalizability in qualitative research has been explored in different ways. In terms of case studies, one method of generalizing suggested by Kennedy (1979) involves investigating replicated single case studies for common, unique and relevant sample and treatment attributes. These would involve comparisons by the researcher and the greater the agreement the more confidence in generalizing. Another method involves having the researcher apply the logic of legal precedents to single case studies, e.g., collecting material facts, investigating the appropriateness of the evaluation decision, investigating the reasons for the decision and investigating the generality of the decision.

Another interpretation is "naturalistic generalization" as outlined by Stake (1978); "...naturalistic generalization (is) arrived at by recognizing the similarities of objects and issues in and out of context

and by sensing the natural covariations of happenings." In this instance, generalizability rests in the experiences of the reader of qualitative reports. It depends on the capacity of the qualitative writer to report information in ways that the reader can apply to his/her experiences. The generalizations occur with the reader's recognition of "objects and issues" that correspond to the reader's experiences.

A Critique

Qualitative research often lacks the power built into quantitative methods, i.e., large numbers, controlled variables, and mathematically sound models of analysis. Qualitative research depends more heavily on the researcher to define and articulate the relevant data as reported within a site.

The settings for qualitative research may contain idiosyncratic dimensions that obscure efforts to describe reasons for various data. The qualitative researcher often lacks the capacity to compare across sites on common, specified variables.

Interestingly, the logic of science, e.g., the reduction to laws and "Truth", seems to permeate qualitative methods. It seems that qualitative researchers try to intuitively construct causal relationships with methods less articulate then quantitative methods.

Combining Methods (or "Whether or not you can count it, it's worth a look)

In the previous sections I have tried to highlight the traditional constructions of quantitative and qualitative methods. Obviously, much more could be said, but the basic constructs are described.

Obviously, the previous descriptions of each method are reconstructions of arguments in the abstract. However, many times the practice

of education research and the actual use of research methods narrows the bounds of the methods described above. It seems that many research applications fall in a gray area between the two methodology positions described above. This could well be due to the fact that social and/or human reality can be studied and analyzed from multiple methodological perspectives. For example, notions of subjectivity and objectivity often become blurred the more one inspects either method. This "fuzziness" may reflect the problems of methodological ambiguity in and the limits of each method when used in social research or evaluation. By combining approaches researchers may first acknowledge the realities of ambiguity in selection of methods, and may also address possibilities for more comprehensive data collection and analyses.

The bases for combining methods of investigation lie in several domains:

1. Comprehensiveness - Information may be obtained which contain group trends, yet produce evidence of personal motives, meanings, references, and contexts.
2. Outcomes tied to meanings - Although outcomes can be measured separate from the meanings attached, no action or outcome exists without its meaning. Combined methods give us the opportunity to inspect processes with outcomes.
3. Utility - Findings of combined studies permit readers and other researchers to juxtapose the results of the different methods one against the other to compare findings.
4. Political needs - Many times evaluations are conducted with hidden agendas and disguised questions. The opportunities to incorporate aspects of power, control conflict and

manipulation into the research effort are great when using combined methods.

5. Interpretation - Conflicting information obtained may help resolve questions of why one thing occurred instead of another. Rather than speculating on "causes" in the absence of conflicting information; the possible disagreement between quantitative and qualitative methods may provide a wealth of information about design, methods, data sources, analysis, and findings.
6. Exploration - Data from each method may feed the other in terms of theory or model building, serving as a basis for continuing research.

The examples given in the following two papers will highlight some of these bases for combining methods.

One of the most difficult problems to grasp in discussing combined methods is the reconciliation of presumably widely divergent philosophical positions for quantitative and qualitative methods. It is not possible to give proper analyses of the positions in this paper; however, movement in this direction seems to be taking place and is desparately needed. It is noted that the ideal of a science of verification is to find an appeal beyond differences of interpretation. This seems forever beyond the reaches of social science; however, as social sciences researchers, we need to go beyond the bounds of science based solely on verification to one more fluid and comprehensive which would study the inter-subjective and common meanings embedded in social reality. Perhaps the most important notion we must explore is that a study of "the science of man" is inseparable from an examination of the

options between which men and women must choose. (These musings are drawn in part from the writings of Charles Taylor).

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